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ABSTRACT

Rapid Profile, developed by Manfred Pienemann of National Languages Institute of Australia/Language Acquisition Research Centre, is a computer-based procedure for screening speech samples collected from language learners to assess their level of language development as compared to standard patterns in the acquisition of the target language. Rapid Profile was developed from standard Profile Analysis (Fletcher, Garman, & Crystal, 1976) which is based on an interview, full transcription of the interview, and analysis of the transcript. RapPro Trainer uses the same observation interface as the Rapid Profile procedure but has added features based on a compact disc containing high quality recordings of learner speech. Rapid Profile can be carried out in real time, uses spoken data, and uses an informant, an analyst, and a facilitator as participants. Tasks involved in the data elicitation procedure are detailed, as is the observation screen used by the human assessor during the task elicitation/assessment session. Rapid Profile's report module and the training necessary to correctly administer a Rapid Profile assessment are also addressed. (JP)

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RAPID PROFILE: A SECOND LANGUAGE SCREENING PROCEDURE

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ABSTRACT

Rapid Profile, developed by Manfred Pienemann of NLIA/LARC, is a computer-based procedure for screening speech samples collected from language learners in order to assess their level of language development as compared to standard patterns in the acquisition of the target language. This paper introduces Rapid Profile and provides a user guide for the Rapid Profile software.

RAPID PROFILE - OVERVIEW

Rapid Profile is a procedure for screening speech samples collected from language learners in order to assess their level of language development as compared to standard patterns in the acquisition of the target language.

Our procedure is based on detailed studies of English and German as second languages. These studies have established standard patterns in the acquisition process which can be used as fixed reference points for the assessment of a learner's level of language development.

Since classroom experiments show convincingly that the effectiveness of teaching intervention is constrained by what the learner is ready to learn, the practical use of profile analysis can have far-reaching positive consequences. By using it, the teacher can determine where the learner is in his/her acquisition process, which elements of the target language can be learnt next, and

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whether there are any developmental gaps in the learner's language.

Consequently the teacher can build the syllabus around what is known about patterns of acquisition and use his/her profiling skills to monitor the learner's actual progress in the acquisition process.

Rapid Profile was developed from standard Profile Analysis (Fletcher, Garman & Crystal 1976) which is based on an interview, a full transcription of the interview and a detailed analysis of the transcript. This procedure yields very precise results but it appears to be practical only in a situation where much time can be spent with one learner.

LARC's approach is a shorthand version of the original procedure. It too involves spontaneous speech data, which, however, is not a free conversation, and does not need to be transcribed. Instead, the learner participates in communicative tasks which trigger the production of grammatical structures which are crucial to determining the student's developmental stage. These structures are recorded by the analyst by clicking in boxes on the computer screen. The tester does not need to analyse these data, only to listen for them and record them. Another feature which adds to the speed of our procedure is that the sample is analysed "on-line", i.e. while the learner speaks. This on-line analysis is carried out using a computer program containing an expert system which is able to objectively interpret the observations entered into the program in terms of developmental level; the program can provide such interpretations as feed-back to the analyst while the assessment is carried out. This allows the analyst to adjust the selection of elicitation tasks to the current state of the assessment. Different tasks were designed by LARC to elicit structures indicative of different developmental stages.

These features - backed by a thorough training - condense the procedure to approximately minutes per informant.

The communicative tasks and the computer program form a package which functions as an assessment/diagnosis tool. We

named this package Rapid Profile because of the time-constrained approach we have taken to profile analysis.

To achieve a speedy analysis at a satisfactory level of accuracy, a sound training is needed. For this purpose LARC created a new training environment, named RapPro Trainer, which uses the same observation interface as the actual Rapid Profile procedure. The added features are based on a compact disc containing high quality recordings of learner speech. RapPro Trainer is able to control the CD and can identify every single grammatical structure in the learner data which is relevant to the Rapid Profile observation procedure. This ability is the basis for a wide range of interactive training modes from which the RapPro trainee can choose.

Thus RapPro Trainer is adaptable to the individual needs of the trainee. It evaluates the training session and can pinpoint areas which need further attention. RapPro Trainer is an interactive training tool which can be used in a self-learning mode.

THEORETICAL BACKGROUND.

Rapid Profile is a second language screening procedure which allows the analyst to assess a learner's level of development against standard patterns in the acquisition of the target language. The procedure is based on a sample of natural conversational speech of the learner which is rapidly analysed with the help of a computer program.

The reference point of such a screening procedure is, of course, the invariant line of development found in second language acquisition. A wide range of empirical studies has shown conclusively that learners pass through invariable stages of development as they reconstruct for themselves the target language. These studies established the standard patterns in the acquisition process which form the basis of this screening procedure.

Table 1 lists 25 structures and the order in which these are

Stage	Syntax		Morphology	+	>	—
6	Cancel Inversion	I wonder where he is I wonder what he wants to eat				
5	D)-2nd Aux-2nd Neg-do2nd	why did she eat that? where have you (sot it? why didn't you tell me?	3sg-s Adv-ly	he eats run slowly	he is eats run lastly	he eat run slow
4	y/n inversion Copula inversion Particle shift	have you seen him Is she at home? where is she? turn it off	obj-case poss-pro past-ed Irr. past -ing	...called him their garden she play-ed she came going	she go Peter's his go-ed now came wenting	he saw she they food V+Ø
3	Topicalization Do-fronting Adverb-fronting Neg.+Verb	cheese I like do he live here? today he stay here	plural-s poss.-s	2 cat-s Pat's cat	a cats he saw Pat's	two cat Pat cat
2.	Neg.+SVO SVO SVO	no me live here me live here you live here?				
1	Single words Formulæ	how are you?-where is X?-hello-Five Dock-Central				

Table 1 ESL Acqusition

acquired by second language learners of English. These findings are based on research by Pienemann and Johnston (1987), Pienemann, Johnston and Brindley (1988) and Pienemann (1991). The structures listed in Table 1 are explained by the examples which are given for each structure.

The acquisition patterns described in Table 1 are not incidental. It has been shown that they reflect a hierarchy of processing complexity. In other words it has been shown that the developmental schedule of these and other structures can be predicted on the basis of the complexity of the learning task. The learner gradually develops processing skills such as word retrieval, use of grammatical information, etc. and learns to use these skills under the enormous time constraints imposed on spontaneous speech. It is the gradual growth of these skills which allows such an accurate prediction of the developmental schedule.

This processing perspective has important implications for measurement and teaching. As far as measurement is concerned, the theory of processing complexity increases the constraint validity of second language screening procedures. The logic behind that proposition is that since we have shown that fixed stages of acquisition are due to universal speech processing skills, we can safely assure that these stages can be found in all learners.

The second implication is known as the Teachability Hypothesis (Pienemann 1984). The Teachability Hypothesis is simply the extension of the processing capacity approach to the classroom context. If learners are constrained in what they can learn in natural situations by the available processing skills, do the same constraints also apply to the influence of teaching? According to the Teachability Hypothesis the answer is yes. Pienemann (1984, 1987) provided ample empirical evidence in support of this hypothesis, which, it should be noted, has been formulated in such a way that it is testable for the whole range of second language grammar. Many studies have since replicated these results.

The existence of such constraints on teachability underline the importance of a screening procedure in second language

teaching: since teaching is only effective if it is aimed at the right level of skill, that level has to be determined for every individual learner. Note also that the syllabus that goes along with this line of thinking, can be written in accordance with the learner's developing grammar (Pienemann, 1983).

THE SITUATION FOR RAPID PROFILE.

Rapid Profile can be carried out in real time by a procedure taking approximately 15 minutes. The data used is spoken. The procedure can also be carried out in two sessions, where the data is taped and the observations are made from the tape. However it is of course much less time-consuming if done in real time. Ideally the procedure includes the following participants:

- an informant - the person whose profile is being obtained
- an analyst - the person who sits at the computer and makes the observations
- a facilitator - the person who elicits the data, using the tasks.

While it is also possible for the analyst to elicit the data at

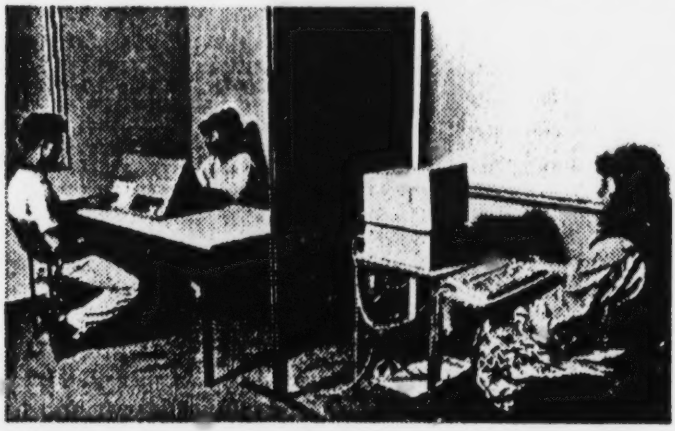

Figure 2 The Rapid Profile Scenario.

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the same time as making the observations, this is not the ideal situation. The procedure is at its most efficient when the analyst can concentrate exclusively on the data. A further reason for separating these roles is that the informant is likely to be intimidated by the focus of the analyst on the computer as opposed to what s/he is saying.

As shown in the photograph in Figure 2, the facilitator and the informant sit together, with the analyst sitting at the computer, separated by a wall or screen, or even in a separate room. Feedback from the analyst is available to the facilitator at any time via a remote display panel, allowing her/him to elicit what is required at any given time. The facilitator does not need to be trained in the techniques of Rapid Profile, but just requires a brief introduction to the procedure and some basic briefing on how to administer the tasks and recognise the feedback. The feedback shows the progress of the informant and highlights any potential gaps in development, allowing the facilitator to tailor the task to the informant's stage, eliminating redundant information and focusing on data required by the program.

DATA ELICITATION

LARC has developed an elicitation procedure for Rapid Profile which ensures that the speech produced by the informant is both naturalisitic and as useful as possible. *Useful* means containing as many of the structures which are necessary for Rapid Profile as possible. The elicitation procedure was designed to avoid the gaps in data samples of English which had previously been noted. The procedure also attempts to control the use of avoidance strategies which often occur in learner speech and to provide contexts for certain structures so that presence/ absence/ oversuppliance can be noted. (These terms are explained with examples in section 6.)

Tasks: why they are used

The elicitation procedure is task rather than formal interview

based. Tasks avoid many of the problems of traditional interview elicitation techniques which include such things as unequal topic control, dominance of turn-taking etc and are often not suitable for situations where for example migrants/refugees have recently arrived in a country and interviews are not carried out with sensitivity. Space constraints prevent a review of the literature on the effects of tasks on discourse (eg Long 1985, 1989, Pica 1987/88/89 etc), but the LARC task based elicitation procedure was designed in accordance with current research.

The tasks were designed to trigger specific structures or to provide contexts for those structures. These structures are necessary for Rapid Profile; it is these which the analyst is listening for and which the facilitator is trying to elicit via the tasks.

A preliminary statistical analysis of the success of the tasks has been carried out. The findings can be summarised briefly as follows: the tasks were successful in either eliciting the structures for which they were designed or providing contexts for those structures. This is with the exception of negatives which proved difficult to elicit across all tasks. The tasks were compared with each other and the most successful tasks were identified and are currently being refined. The informal interview situation did not

Figure 3 Informant and Facilitator using tasks.

Figure 4 Analyst recording observations

yield as much data as the tasks.

Current research being undertaken at LARC for the Rapid Profile elicitation procedure is the redesigning of the tasks to eliminate the sociocultural bias and also further data collection and analysis to facilitate better understanding of the function of tasks in elicitation of morpho-syntactic structures.

The Tasks.

The tasks are designed to be as impersonal as possible, so they avoid things like interviewer dominance and informant shyness. They have a clear communicative goal to be performed and could even be described as entertaining. Figures 3 and 4 show the tasks being used by informants.

Tasks: description

There are currently 6 task types used for the Rapid Profile elicitation procedure, although these are currently being redesigned

for the general market. Each task was designed with a view to eliciting particular structures. The tasks and their anticipated data are described briefly here

Three tasks (including the informal interview task) can be carried out by the informant and the facilitator:

1. *Habitual Actions* - The facilitator asks the informant to look at photos showing pictures of everyday activities, eg a librarian at work, and asks what him/her to say what a police officer/librarian does every day?
Designed to elicit - 3SGs

2. *Story Completion* - The informant is shown a set of pictures, and is asked to find the story to fit the pictures by asking the facilitator questions eg a person who has been poisoned needs to find an antidote/cure./ A man whose wife has just had a baby argues with her about the baby's name.
Designed to elicit - Wh Questions - Why/What

3. *Informal Interview* - This is simply free conversation, where the informant is encouraged to ask questions of

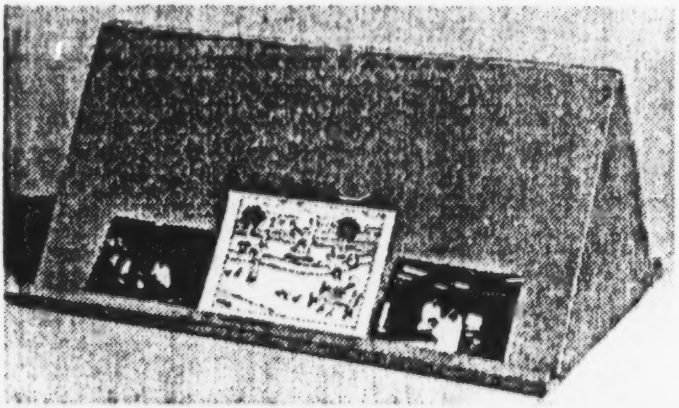

Figure 5 Tasks and division board.

the facilitator.
Designed to elicit - **General/Qs**

Three tasks can be carried out by two informants (the facilitator is interactive in a supportive way). A board, illustrated in Figure 5, has been designed which prevents participants in the tasks from seeing their partner's cards/pictures:

4. *Picture Sequencing* - Closed (where participants are told of the purpose/ limitations of the task) tasks, in which two informants are each given part of a story, eg of a person being assaulted on their way home, and asked to sequence (order) the pictures between them by asking questions.
Designed to elicit - **Qs and Negs (responses)**

5. *Picture Differences* - Closed tasks of "spot the difference". Informants ask questions to exchange information about their cards.
Designed to elicit - **Q's and Negs.**

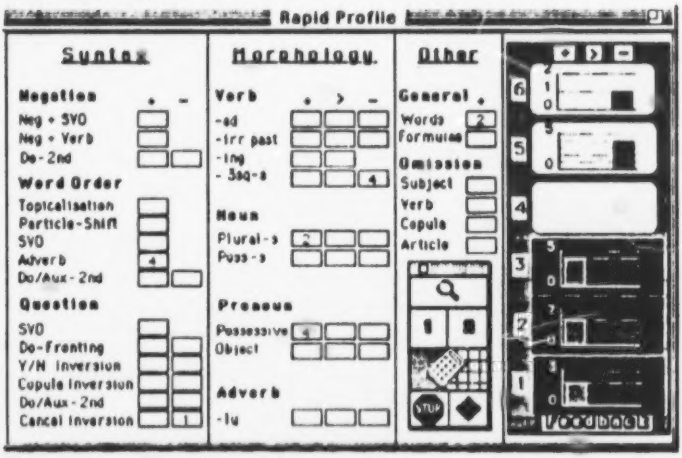

Figure 6 The observation screen

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6. *Meet partner* - Informants in dyads "interview" each other and introduce each other to facilitator.
Designed to elicit - **Qs and 3SGs.**

The following section of this report will take the form of a user guide for the Rapid Profile software.

FEATURES OF RAPID PROFILE- OBSERVATIONS.

Within Rapid Profiling, observations are captured using the screen shown in Figure 6. This interface would be used by the human assessor during the task elicitation/assessment session described earlier.

The observation screen contains an entry for each of the ESL structures which are used by Rapid Profiling to map out the process of language development. On this screen the structures are grouped according to very broad grammatical categories. This grouping is basically arbitrary, and is designed to aid users in locating the structures as quickly as possible during assessment sessions. A full description of all the structures with examples is given in Table 1 at the end of this brochure.

An observation is recorded by simply positioning the mouse and clicking in one of the boxes adjacent to the structure labels. These boxes represent:

- Suppliance (+)
  A structure is observed in a valid context.
  For example, the presence of 3rd person singular 's' in the following sentence, "She walks to the park"
- Nonsuppliance (-)
  A structure is missing from a context where its presence is obligatory in standard English.
  For example, "She walk to the park"
- Oversuppliance (>)
  The the use of a structure has been overgeneralised
  For example, "They walks to the park"

Each click of the mouse is counted as one observation. These observations are stored by the computer for later processing and are displayed as a running count in the respective boxes. Thus, for example, we can see from Figure 1 that the assessor has observed 4 examples of possessive pronouns.

If the user accidently clicks in the wrong box, a single keystroke can be used to undo the mistake. Error correction can be performed at any time regardless of when the erroneous observation was made.

With some structures the computer will request additional information whenever an observation is made. Figure 7 illustrates this process. Here the computer is asking the user to type in the stem of the lexical verb that occured within the context of an observed structure. This information is stored in a separate table and is used to constrain Rapid Profiling's expert system when it generates hypotheses about the level of a learner.

Figure 8 is an example of one of the constraint tables created by Rapid Profiling. This table records the verb stems which have occured with one of the four verb suffix morphemes. Morphological and lexical totals are kept to ensure that there is sufficient variation in the data to rule out the use of formulae.

Returning to Figure 6, the right hand side of the observation screen is used to provide feedback on the status of ongoing assessment sessions. This feedback is available to both the assessor and the facilitator (via the remote display panel) at any time during the session. The assessor can use the online feedback to focus his/her own attention towards structures and stages for which data is limited. This can significantly reduce the number of structures which have to be monitored. The facilitator can use the feedback to guide the application of tasks to ensure that the interaction with the learner provides sufficient contexts for structures at all levels.

A separate graph is provided for summarising the observations entered for structures within each of the six stages of development predicted by Rapid Profiling theory. For each graph the horizontal axis is fixed with a bar representing suppliance, oversuppliance and nonsuppliance respectively. The

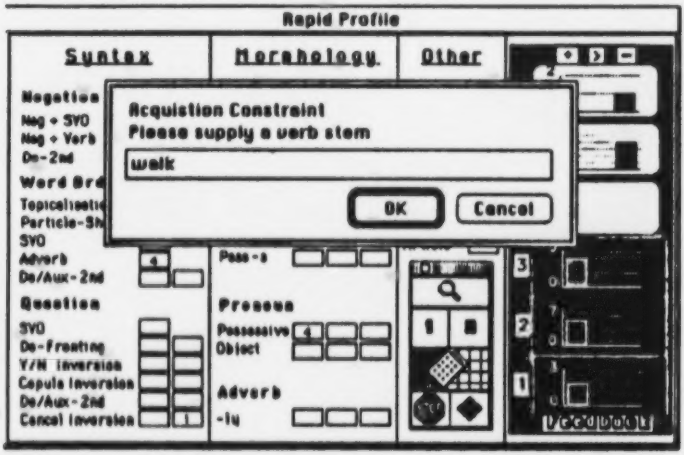

Figure 7 *Acquisition Constraints*

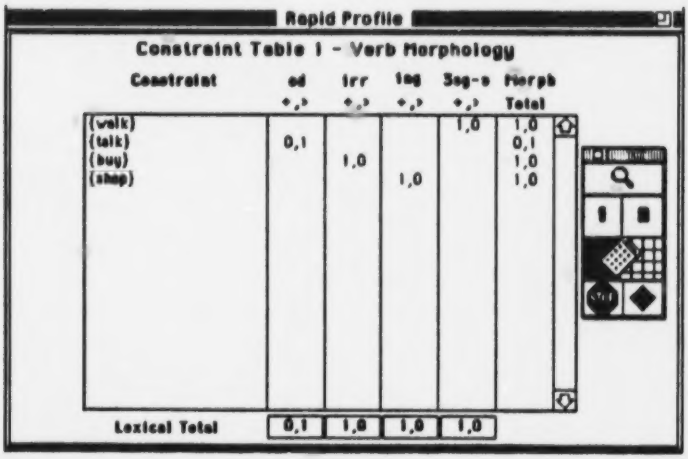

Figure 8 *Constraint Table*

vertical axis represents the number of observations and is scaled according to the volume of data within a given stage.

When there is sufficient data for Rapid Profiling to hypothesise that a particular stage has been acquired, the relevant graph will be highlighted in black. When there is no data for a given stage the relevant graph will appear as a white blank. These features enable fast visual identification of acquired stages and acquisitional gaps.

The last point of interest on the observation screen is the navigation palette. This device is initially located at the bottom of the last column of structures, but can be relocated anywhere on the screen as the user requires. The navigation palette enables the assessor to move very quickly to and from the various modules of Rapid Profiling. Each area of the palette is linked to a specific Rapid Profiling module so that when the user clicks on a particular area, the program control is shifted accordingly. Thus, clicking on the topmost rectangle of the palette, which is marked with a magnifying glass, will always return the user to the observation screen. The two numbered squares take the user to the constraint tables. The area marked with a calculator is used to locate the user within the report module. The stop sign enables the user to exit from Rapid Profiling or to restart a session while the question mark is used to call Rapid Profiling's help facility.

Reports

Rapid Profiling's online feedback facility can be used to provide an accurate summary of the progress of an assessment session at any time during that session. When the assessor or the facilitator are satisfied that sufficient observations have been recorded, a much more detailed evaluation of the data can be performed using Rapid Profiling's built in report module.

Like the observation screen, the report, shown in Figure 9 has an entry displaying the data for each of the ESL structures. Here, however, the structures are organised according to Rapid Profiling's hierarchy of development. In one sense the report can

be seen as teasing apart the information summarised by the online feedback.

It can be seen that while syntactic structures can be definitively placed within the stage structure, current research can only suggest a broad stage range for the majority of the morphological structures.

An accuracy measure is calculated for each of the structures. The column labelled "%" represents positive suppliance as a percentage of total observations for a given structure.

A checkmark is used to indicate those structures which are considered to have been acquired. The acquisition rules are based on the emergence criteria outlined above and are coded into Rapid Profiling's expert shell.

Probably the single most important aspect of the Rapid Profiling's report module is the profile assessment that is displayed at the top of the report screen. This stage hypothesis represents Rapid Profiling's overall assessment of the learner's language based on observations recorded, the information contained in the constraint tables and any possible gaps or contradictions in the data. Significant lack of or irregularities in the data are reported

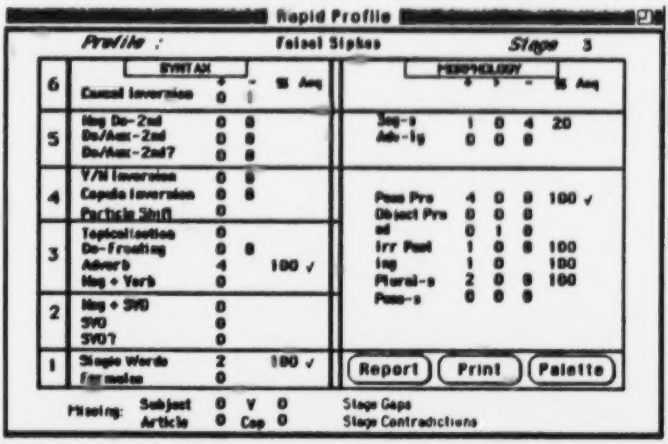

Figure 9 Reports

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as gaps and contradictions at the bottom right of the report screen.

Given a valid set of observations, a learner can always be accurately placed within the cognitive stage structure that underlies the Rapid Profiling system.

Rapid Profile as an information source

A useful side-effect of using Rapid Profile as an assessment method, is that a large amount of data relating to a particular student's or informant's language is recorded and stored on the computer. As we shall see, this information can be organised and retrieved at any time in the future to accomadate the needs of a particular user.

One important feature of the Rapid Profile procedure is that data entered into the system will remain stable at all times. If you were using a pen-and-paper method of observation, you would be highly surprised if your observations mysteriously disappeared. Rapid Profile's 'electronic' observations are, if anything, more robust. The assessor is free to suspend operation of or exit from the system at any time, to use the computer for other purposes or even to switch the power off completely without having to worry about explicitly 'saving' the Rapid Profile data. When operation is resumed, even if an extended period of time has elapsed, the user will be presented with a profile in exactly the same state of completion as before. Although extended periods of time should not be necessary for Rapid Profile assessment, this feature ensures that unexpected interruptions or session timing difficulties do not present a problem.

There would be little point in maintaining a body of profile data if this data could not be organised and accessed as some form of useful reference source. Incorporated into Rapid Profile is an Archive mechanism which basically doubles as an old fashioned filing cabinet.

The user can create any number of archive files, choosing names which will be meaningful within a given context. For

example, if an assessor is responsible for a given number of classes, a separate archive file could be created for each class using a naming stratergy such as "Class-1-archive" to "Class-n-Archive". As each student is assessed, the resulting profile is saved into the relevant archive file.

When a profile is 'saved', a copy is taken of all of the profile data, including the observation screen, the constraint tables and the profile report. This information is then available at all times, allowing the user to browse or step through the various profiles contained in an archive file. An index card is created so that users can quickly identify and examine specific profiles.

Figure 10 is an example of the biographical information that can be stored along with a profile. Such information helps to identify specific profiles within an archive file and is also potentially useful as a student record mechanism.

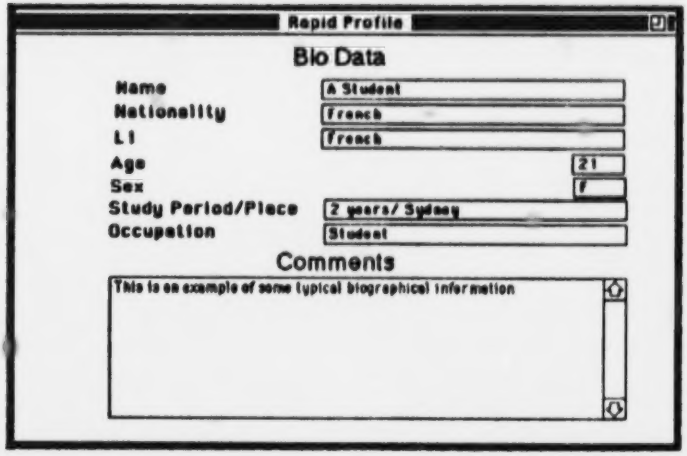

Figure 10. Biodata

The information stored in an archive file is what is termed 'Read-Only" data. That is, users are free to step through and examine all of the data but they cannot change any of the values

contained therein. However, Rapid Profile does allow the user to 'load' a profile from an archive file into Rapid Profile itself and continue working on (ie change) that profile. The updated profile may then be used to replace the original archive entry or may be stored as a new and independent entry.

TRAINING

Rapid Profile represents a major step forward in the field of language assessment. It is easy to use, accurate, reliable and economical, both in terms of test administration and in the amount of information that can be extracted from a limited amount of data.

However, to gain maximum benefit from this technique, potential users must invest a certain amount of time and effort in order to become fully conversant with both the theoretical and the practical aspects of Rapid Profile.

To correctly administer a Rapid Profile assessment, a user must be aware of the key concepts from second language acquistion research, such as interlanguage development and teachability, which are part of the general framework that surrounds the procedure. More obviously the user must be able to recognise and understand the grammatical structures which are the basis of the observations and have a good working knowledge of task-based elicitation techniques.

The above skills can be easily acquired through a combination of taught workshops and guided self-study. Potentially more problematic, is the question of becoming familiar with the computer interface itself.

It would be unacceptable for users to be told to gain experience solely by assessing their students. The weak link in the Rapid Profile chain is undoubtedly the human user. If the computer is presented with insufficient or incorrect observations it will quite obviously fail to provide an accurate profile. From the very first time an assessor administers the Rapid Profile procedure he/she must be familiar with all aspects of its use.

To address this problem LARC has developed a training

environment which is able to simulate as accurately as possible the real-life assessment scenario. LARC has produced a series of audio CDs which contain a wide range of learner speech data recorded during task-based elicitation sessions. The Rapid Profile trainee is able to listen to these sessions while at the same time attempting to make observations about the language of the learner via the computer interface. The structural content of the speech contained on the CDs has been previously analysed at LARC and is stored on the computer. It is thus possible for the training program to match up the observations made by the trainee with the benchmark analyses. Instantaneous feedback can be given to the trainee on the quality of their observations and an indepth analysis of their performance can be produced when the training session has been completed. Figure 10 is an example of the type of on-line feedback which is available to the trainee during the training session.

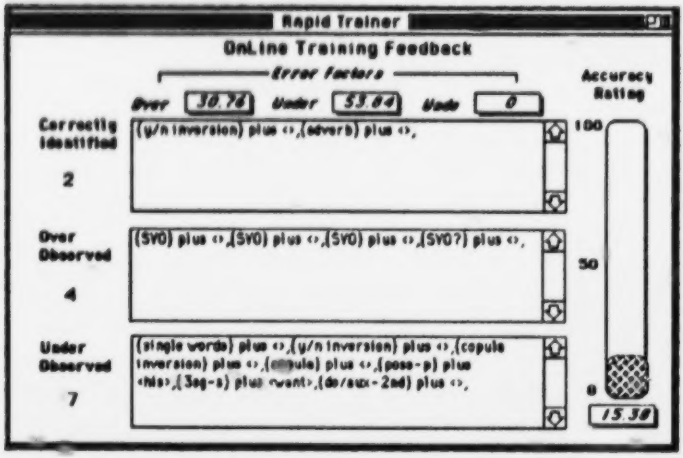

Figure 11 On line Feedback

It is possible for the trainee to structure the training session to meet his/her particular needs or requirements. It is possible to play back particular grammatical structures, a sequence of

structures from a specific learner or specific level of development, or entire task sessions. The playback can be paused at any time and it is possible to repeat sections of the speech as many times as required. The training observation screen can also be simplified so that it contains only those structures which are present in the data currently being presented.

The training procedure has been designed so that it can be used with a minimum of supervision. Due to the technology involved however, it will be necessary for users to visit designated training centres rather than working with their own computers. When trainees are satisfied with their performance on the training data, supervised certification tests can be taken. It will be necessary for users to receive certification before becoming recognised Rapid Profile assessors.

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